

## The Amateur in You, Part 2

### *What have you been pondering?*



## Setting up Winlink for an Icom IC-7300



One way to take advantage of a digital radio mode is by using [Winlink](#), software that allows you to send and receive emails over HF. The Winlink system stores email, attachments, messages, weather bulletins, and more on clustered servers, then delivers them by internet when the web is available, or by the *Winlink Hybrid Network* when the web is unavailable. This makes email and messaging available at all times, as long as HF propagation is favorable for your band of choice.

Using Winlink with an Icom IC-7300 is fairly straightforward because of its built-in TNC / sound card. In fact, there are many modern transceivers with this built-in device, so it's not unreasonable to expect that you too might have one of them.

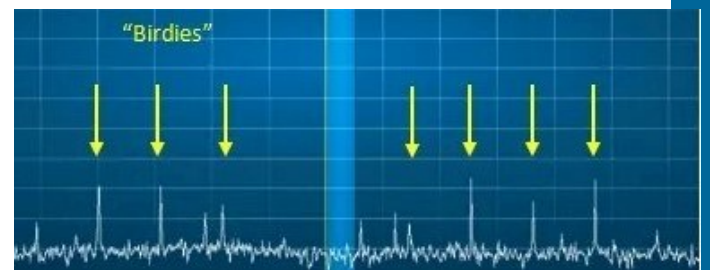
One caveat I need to state is that, although the links I've provided are valid at the time of this writing, some of them point to retail locations that could change without much notice. Hopefully, I've described enough detail to help you find the parts or the information without their links. And speaking of details, this little guide will not explain *every detail* about Winlink installation and use.

### Gather the pieces

You'll need to collect a few things, to set up your Winlink station, starting with a computer running Windows 7 or later. In this example, I'm using my HP ProBook laptop running 64-bit Microsoft Windows 10 Pro with 12 GB of memory. I only provide this so you'll know what I'm using.

Next, you'll need an amateur station made from an [Icom IC-7300 transceiver](#), plus an accompanying [power supply](#), [HF antenna](#), and [coaxial cable](#). The tuner is built into the transceiver, so no need to get another.

Finally, you'll need to purchase a high-quality [USB type A/B cable](#). An unshielded or otherwise cheaply made USB cable can result in your receiver signals mixing with harmonics, affectionately known as *birdies*.





## The Amateur in You, Part 2 *continued*



### Pair your computer with the transceiver

First, make sure your USB cable is recognized by both your computer and the IC-7300. Turn on the IC-7300 and plug the USB type B end of the cable into the rear of the IC-7300. Next, turn



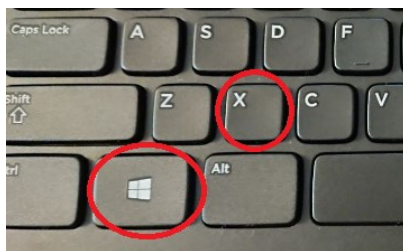
*USB type B plug*



*USB port (socket) in the rear of the IC-7300*

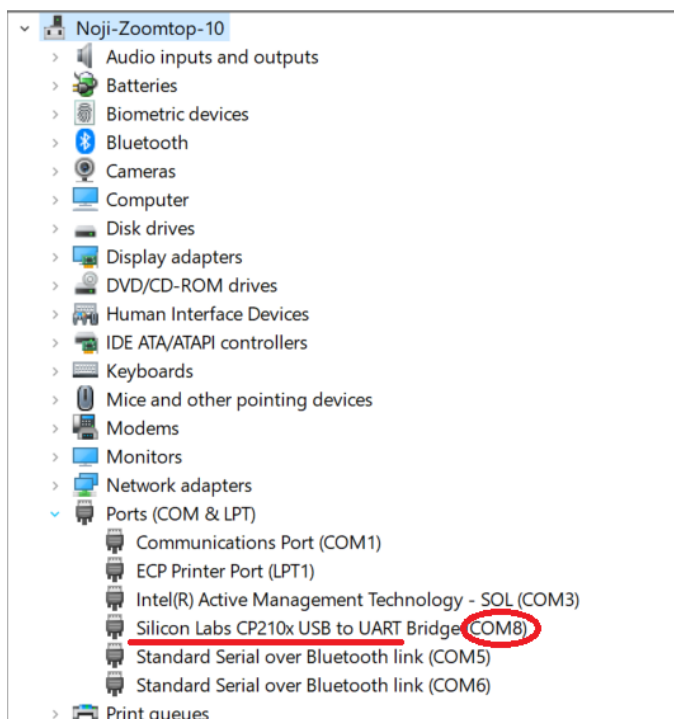
on your computer, and once Windows is fully up and running, plug the other end of the cable into your computer USB port.

Press <Windows-x> on your keyboard. (While holding the Windows key, press x)



Click Device Manager. In the Device Manager window, click the little greater-than sign (>) in front of "Ports (COM & LPT)" to display the COM port numbers. The IC-7300 should appear under the Ports list as "Silicon Labs CP210x USB to UART Bridge" or similar. If you see this line, but not in the Ports (COM & LPT) list, you'll need to install the Icom IC-7300 USB driver, which you can download from the [Icom website](http://icominc.com).

Record (write down or remember) the COM port number listed after the driver name. In my case it's COM8.





## The Amateur in You, Part 2

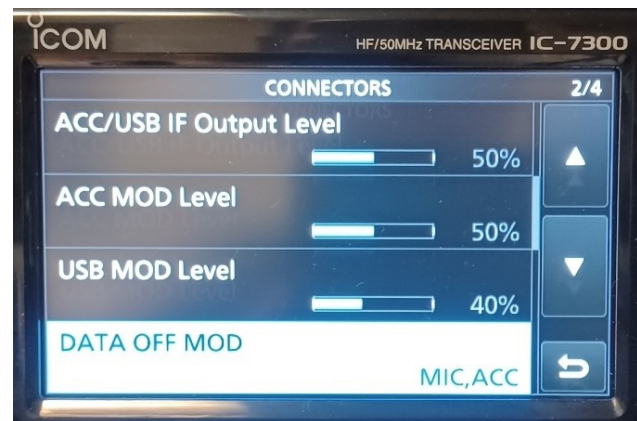
### *continued*



### Set up the transceiver

Ensure an antenna is connected to the rear of the IC-7300 by a feed line (coaxial cable). On the IC-7300 press the **MENU** button, then tap **SET**, then **Connectors**. Leave most of the settings at their defaults, which should be

- ACC/USB Output Select = AF
- ACC/USB Output Level = 50%
- ACC/USB AF SQL = OFF (Open)
- ACC/USB AF Beep/Speech... Output = OFF
- ACC/USB IF Output Level = 50%
- ACC MOD Level = 50%
- USB MOD Level = 40%
- USB Serial Function = CI-V



Tap **DATA OFF MOD** and select **MIC,ACC**

Scroll down and tap **DATA MOD**, then select **USB**

Tap **CI-V** and ensure the following settings show

- CI-V Baud Rate = Auto
- CI-V Address = 94h
- CI-V Transceive = ON
- CI-V USB->Remote Transceive Address = 00h
- CI-V Output (for ANT) = OFF
- CI-V USB Port = Unlink from [REMOTE]
- CI-V USB Baud Rate = 115200
- CI-V USB Echo Back = ON
- Inhibit Timer at USB Connection = ON

Tap the **Return** icon to return to the **SET** window, then tap **Function** and ensure the following are set:

- RF/SQL Control = RF+SQL
- Tuner, then PTT Start = ON

This last setting will automatically tune (and leave the tuner on) when the software starts transmitting. Here are a couple more general settings:

- Ensure the **COMP** (compression) is turned **OFF**
- Set the **RF POWER** to **100%** and the **MIC GAIN** to **30%**



*Return icon*

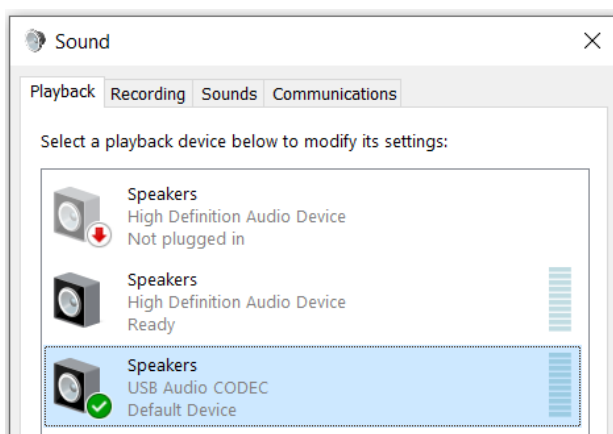
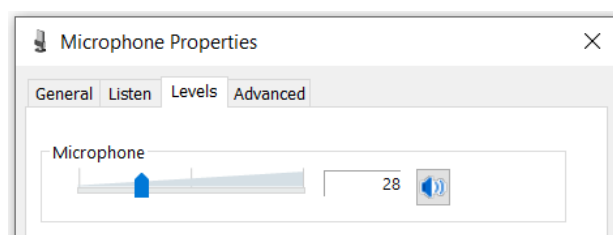
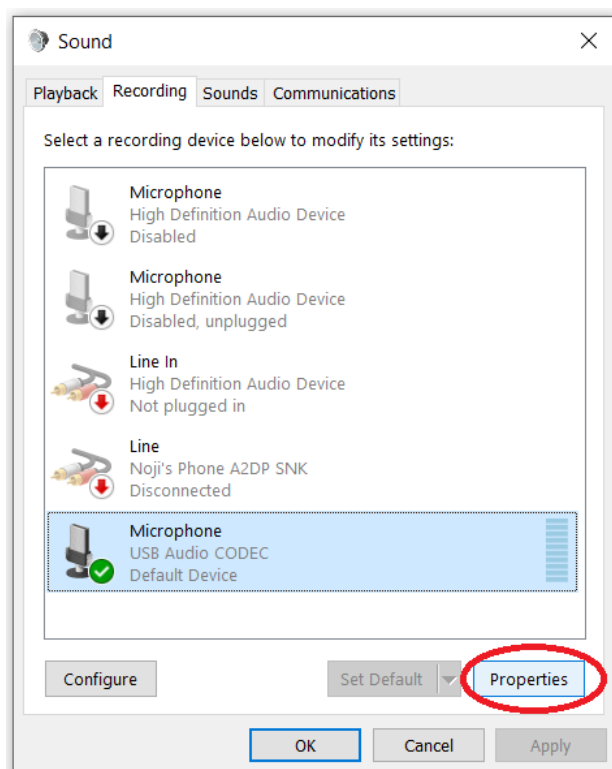


## The Amateur in You, Part 2 *continued*

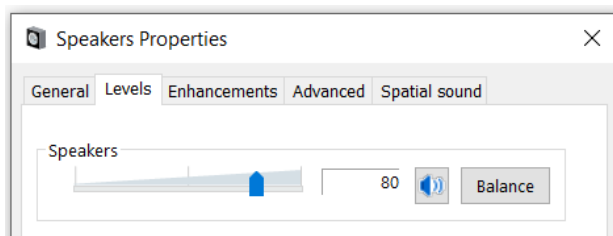


### Set up your computer sound devices

You'll be sending and receiving messages through the built-in TNC of the IC-7300, and communicating with it through your computer's sound interface. This means setting your microphone and speaker that are attached to the transceiver to appropriate levels. On your computer, open the **Control Panel**, click **Sound**, then click the **Recording** tab. Select the microphone associated with **USB Audio CODEC**, then click **Properties**. Click the **Levels** tab and ensure the slider is about **28**, then click **OK** to exit.



Back on the **Sound** window, click the **Playback** tab and select the speaker associated with **USB Audio CODEC**, then click **Properties**. Click the **Levels** tab and ensure the slider is about **80**, then click **OK** to exit.



## The Amateur in You, Part 2 *continued*



### Set up the software

Download and install Winlink Express from [the Winlink website](#) (click *User Programs*, then *Winlink Express*, scroll down, then click the link under Download) onto your computer. [Here is the online manual](#) if you need to refer to it.

Open the Winlink Express software and click **Settings**, then **Winlink Express Setup...** Enter the following settings:

- ♦ **My Callsign:** KNØJI (your call sign)      ♦ **My Password:** (your choice)
- ♦ Enter your information in **Name**:, **City**:, **State**:, **Country**:, and **Non-Winlink e-mail**:
- ♦ Enter a password recovery email      ♦ **Phone number:** (your cell)

Enter your Grid square in **My Grid Square**: if you know it, and leave the remaining settings at default, or modify them later, as you become familiar with the software.

Click the **Update** button to save your settings and return to the main (startup) window.

Winlink Express Properties

**Call Signs**

My Callsign:  My Password:  (Case sensitive) ☐ Show password

Callsign suffix (optional):  (Used for country code)

Password recovery e-mail:   
(Non-Winlink e-mail address where lost password will be sent when requested)

**Auxiliary Callsigns and Tactical Addresses**

My Grid Square:

Winlink Express registration key:

**Service Codes**

(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)  
If you change service codes, you must update the list of channels.

**Contact Information (Optional)**

Name:

Street address 1:

Street address 2:

City:

State/Province:

Country:

Postal code:

Web Site URL (optional):

Phone number:

Non-Winlink e-mail:

**Additional information (optional):**

Recalculate HF path quality if SFI changes more than:

Keep logs for  weeks. Keep deleted messages for  days.

☐ Display list of pending incoming messages prior to download

☒ Warn about connections to stations holding messages

☒ Allow diagnostic information to be sent to the Winlink Development Team

☐ Automatically install field-test (beta) versions of Winlink Express

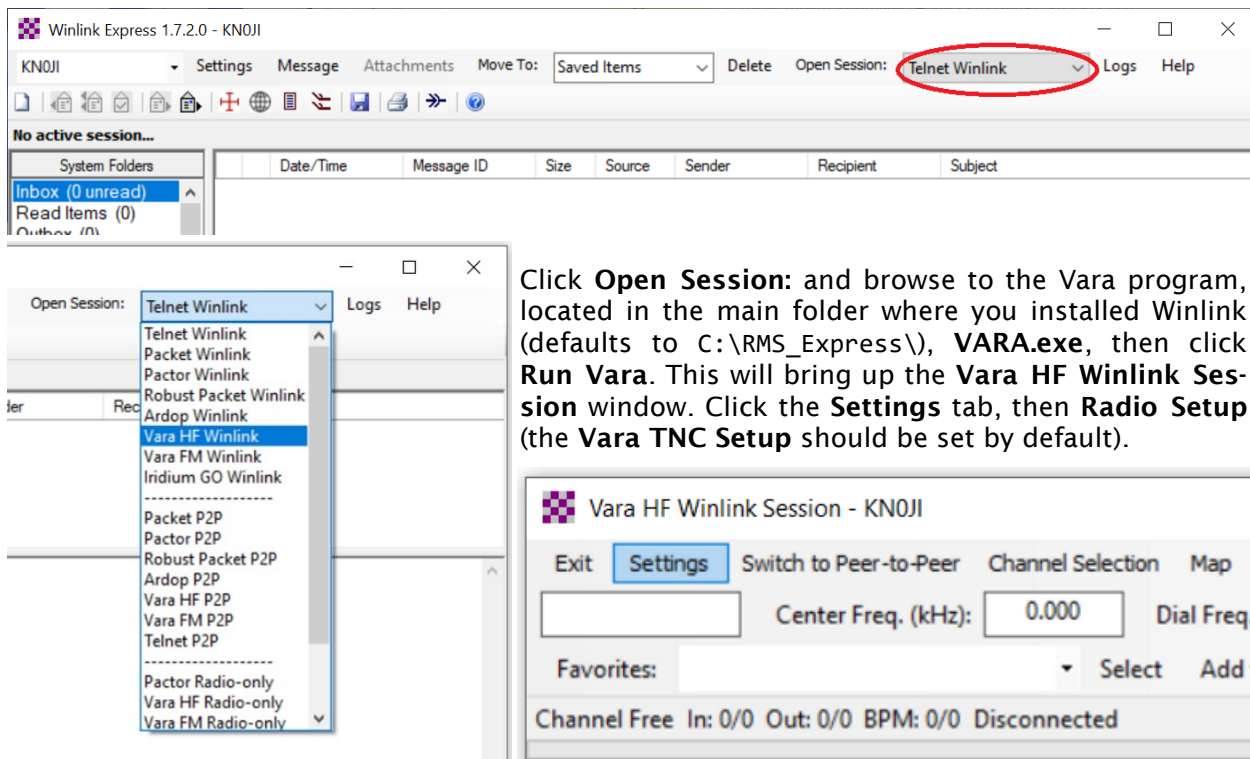


## The Amateur in You, Part 2 *continued*

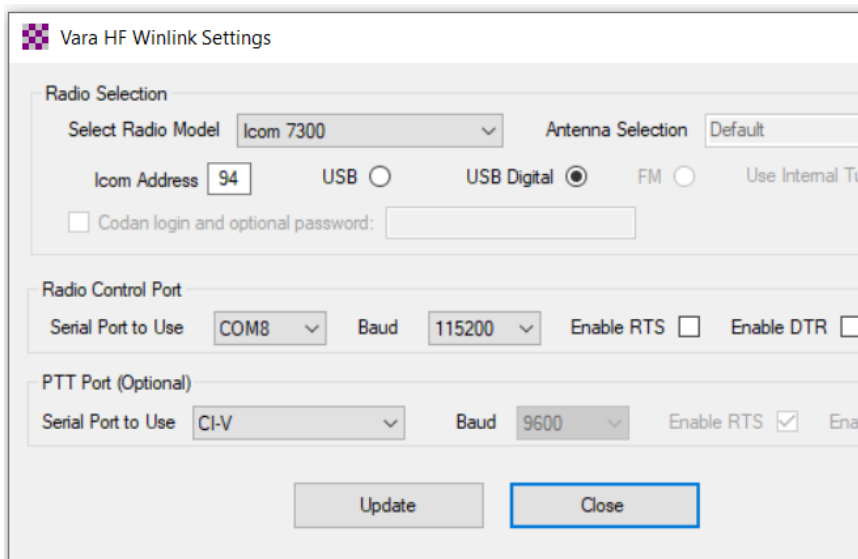


### Start up the software

On the main Winlink screen, click the **Telnet Winlink** dropdown and select **Vara HF Winlink**.



Click **Open Session:** and browse to the Vara program, located in the main folder where you installed Winlink (defaults to C:\RMS\_Express\), **VARA.exe**, then click **Run Vara**. This will bring up the **Vara HF Winlink Session** window. Click the **Settings** tab, then **Radio Setup** (the **Vara TNC Setup** should be set by default).



Click **Select Radio Model** and select **Icom 7300**. For **Icom Address** enter **94** and select **USB Digital**.

Under the **Radio Control Port** section, for **Serial Port to Use** select the **COM** port discovered earlier, change the **Baud** to **115200**, and un-check the **Enable RTS** and **Enable DTR** boxes. Under the **PTT Port (Optional)** section, change **Serial Port to Use** to **CI-V** and leave the **Baud** setting at default. Click **Update** to save your settings and continue.



## The Amateur in You, Part 2 *continued*



### Compose and send

In the Winlink main window click the **Message** tab, then **New Message**. Compose an email like you normally would, then click **Post to Outbox**.

Enter a new message

Post to Outbox Select Template Attachments Spell Check Save in Drafts Close

From:  Send as:  ☐ Request message receipt

To:

Cc:

Subject:

Attach:

Hello, me!

In the Winlink main window click the **Open Session:** tab, then click **Channel Selection** to choose an HF server by which to send the email. Click **Update Via Internet** to populate the chart with a list of available HF servers. Click an entry to select your HF server of choice, then click **Select** to have Winlink populate the Session window with your server selection.

Vara HF Winlink Session - KN0JI

Exit Settings Switch to Peer-to-Peer Channel Selection Map Forecast Best chan. Next chan. **Start** Stop Abort

Center Freq. (kHz):  Dial Freq. (kHz):  Bearing:  Quality:

Favorites:

Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected

\*\*\* Launching VARA TNC  
\*\*\* Successfully connected to VARA TNC.  
\*\*\* Vara signal bandwidth is 2300 Hz.  
\*\*\* Using Icom 7300, COM8, 115200 baud  
\*\*\* Ready

HF Channel Selector

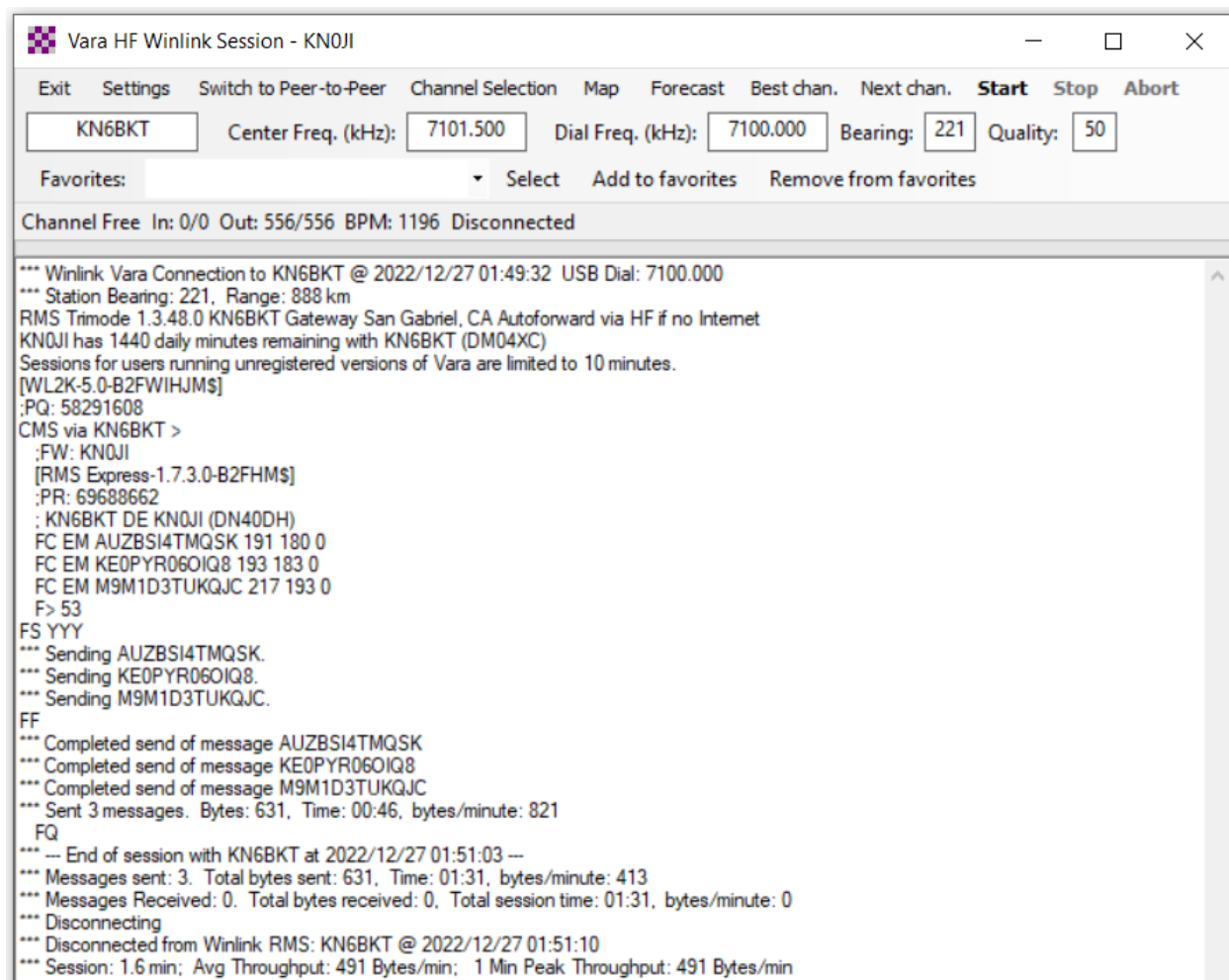
Call sign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
KD6OAT	3594.000	V2300	DN40BO	00-23	PUBLIC	35	336	99	99
KD6OAT	7097.000	V500	DN40BO	00-23	PUBLIC	35	336	96	96
KD6OAT	10146.700	V2300	DN40BO	00-23	PUBLIC	35	336	94	94
KD6OAT	14109.500	V2300	DN40BO	00-23	PUBLIC	35	336	92	92
K7DAV	7104.500	V2300	DN40BX	00-23	PUBLIC	76	349	98	58
K7DAV	7065.900	V500	DN40BX	00-23	PUBLIC	76	349	98	58
NS7K-10	7104.900	V2300	DN31XC	00-23	PUBLIC	92	343	98	58
AG7MM	7103.500	V2300	DN32CM	00-23	PUBLIC	300	325	98	57
W7JKV	7103.000	V2300	DN20ET	00-23	PUBLIC	335	281	97	55
K7DAE	7106.000	V500	DN43CT	00-23	PUBLIC	389	359	95	54
K7DAV	3597.000	V2300	DN40BX	00-23	PUBLIC	76	349	95	54
K00000	10142.000	V2300	DM26JG	00-23	PUBLIC	543	215	92	53
W0VG	10146.500	V2300	DM79IO	00-23	PUBLIC	552	096	87	52
KB2PCN-5	10130.000	V500	DM79HQ	00-23	PUBLIC	543	095	87	52
K00000	7102.000	V2300	DM26JG	00-23	PUBLIC	543	215	91	51
K7ORZ	14104.200	V2300	DN17OR	16-23	PUBLIC	918	336	81	51
K00000	7106.500	V500	DM26JG	00-23	PUBLIC	543	215	91	51

Click **Start** in the upper-right of the Session window, and Winlink will begin calling out to the target server with your call sign, several times until it verifies a connection or exhausts its retries. Making a successful connection might require you to try going through any of several HF servers. They're listed by path integrity, and might not reflect that from your particular location. Double-click your line of choice to start.

## The Amateur in You, Part 2 *continued*



### Success



As you can see, I had three messages waiting in my Outbox, now all sent. And to the right is my last message as was received by UVARC.

By the way, I started out attempting to use ARDOP, but could never get it to work, because most HF servers don't support it yet. As soon as I went to Vará, it worked almost effortlessly.

*Noji Ratzlaff, KNØJI (kn0ji@arrl.net)*

